UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,779	04/06/2006	Kikuo Maeda	070456-0109	2527

20277 7590 02/16/2010

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER	
YANG, JIE	
ART UNIT	PAPER NUMBER
1793	
MAIL DATE	DELIVERY MODE
02/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,779	MAEDA ET AL.	
	Examiner	Art Unit	
	JIE YANG	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9 and 11-19* is/are pending in the application.

4a) Of the above claim(s) *11,12 and 17-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-9 and 13-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim 1 has been amended, claim 6 and 10 have been cancelled; claims 11, 12, and 17-19 are withdrawn as non-elected claims; and claims 1-5, 7-9, and 13-16 remain for examination.

Status of the Previous Rejection

Previous rejection of claims 1-5, 7, 8, and 10 under 35 U.S.C. 102(b) as anticipated by Japan patent publication 09-296214, thereafter JP'214 (With machine translation document) is withdrawn in view of amendment filed on 11/09/2009.

However, a new ground(s) of rejection is applied to the amended claims as following.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-9 and, 13-16, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan patent publication 09-296214, thereafter JP'214 (With machine translation document) in view of Grell et al (US 6,682,227 B2, thereafter, US'227).

Regarding claim 1, JP'214 teaches a method for solid forming and tempering treatment, capable of performing quenching at sufficient cooling velocity without causing distortion even in the case of a relatively thick material (Abstract of JP'214), which reads on the manufacturing of a thin component as recited in the instant claim. JP'214 teaches molding-heat-processing (Abstract, Paragraph [0013], Fig.3-5 of JP'214), quenching while holding the material to treated between forming dies, and treating the material under the temperature of isothermal transformation region (Abstract and Paragraph [0016] of JP'214), which reads on the heating, sizing, quenching and isothermal transformation processes as recited in the instant claim. JP'214 teaches "quenching" to obtain a martensitic structure (Paragraph [0054]-[0057] of JP'214) and JP'214 specifically teaches martensitic part is fully carried out to below a martensite transformation point and it causes a martensitic transformation (paragraph [0057] of JP'214), which reads on the limitation of quenching process causes a martensitic transformation as recited in the instant claim. JP'214 further teaches: after carrying out rapid cooling of the processed material, the molding heated material heating and holding to a desired temperature in order to bainitize the process material (Paragraph [0021] of JP'214), which reads on the tempering limitations as recited in the

instant claim. JP'214 teaching using carbon steel S70C (carbon is about 0.72wt%), which reads on the limitation of steel containing carbon by at least 0.4 mss% as recited in the instant claim. JP'214 does not specify the rolling bearing ring application. US'227 teaches a method for manufacturing rolling bearing component (Title, Abstract of US'227). US'227 teaches heat-treating the component by inductive heating (Col.2, lines 9-17 of US'277). US'227 teaches using carbon steel with carbon from 0.3-0.55 wt% (claim 3 and Table of US'227) for rolling bearing component application (Title, Abstract of US'227). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention made to apply the carbon steel for rolling bearing component application as disclosed by US'277 (Col.2, lines 9-18) in the process of JP'214 with the expected success because both JP'214 and US'227 teach carbon steel with similar carbon containing as recited in the steel of the instant invention.

Regarding claims 2-5, 7, and 8, JP'214 teaches mold forming, which reads on limitation of sizing the thin component with mold as recited in the instant claim 2. JP'214 teaches quenching while holding the material between forming dies, which reads on the quenching said thin component using said mold as quenching media as recited in the instant claims 3-5, and 8. The

quenching and tempering processes of JP'214 read on the limitation of the mold being used in both of said steps of quenching and tempering as recited in the instant claim 7.

Regarding claims 9 and 14, US'227 teaches heat-treating the component by inductive heating (Col.2, lines 9-17 of US'277).

Regarding claims 13, 15, and 16, rolling bearing ring is one of thin component as claimed in the instant claim 1. US'227 teaches using carbon steel with carbon from 0.3-0.55 wt% (claim 3 and Table of US'227) for rolling bearing component application Title, Abstract of US'227).

Still regarding claim 13, which includes similar process steps as recited in the instant claim 1, refer to the rejection for the claim 1, claim 13 would be obvious over JP'214 in view of US'227.

Still regarding claim 15, JP'214 teaching using carbon steel S70C (carbon is about 0.72wt%), which reads on the limitation of steel containing carbon by at least 0.4 mss% as recited in the instant claim.

Still regarding claim 16, the pressing pressure is recognized as a result-effective variable in term of the mold pressing result, which depends on materials, heat temperature, and dimension of working piece. JP'214 teaches the same molding-

heat, quenching, tempering processing on the similar carbon steel as recited in the instant invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the pressing pressure, for example at least 2.94 N/cm^2 as claimed in the instant claim in order to obtain the desired working pieces.

Response to Arguments

Applicant's arguments, see "applicant arguments/remarks", filed 11/09/2009, with respect to the rejection(s) of claim(s) under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. Regarding the arguments related to the amended feature in the instant claims, the Examiner's position is stated as above.

In the remark, the Applicant argues: the present application found through experiments that a warping deformation can be reduced and a bearing life can be improved by manufacturing the bearing ring of the thrust needle rolling bearing using the disclosed method. While the disclosed subject matter could not have been obtained without the described experiments, the JP'214 and US'227 neither disclose nor suggest such experiments or analysis. Therefore, the subject matter would not have been obvious over the JP'214 and the US'227.

In response,

Warping deformation is one of steel properties, which depends on the material and operation processes. As discussed above, JP'214 in view of US'227 teaches apply

the similar carbon steel by similar working processes for the same thrust needle rolling bearing application as recited in the instant claim. The similar property of Warping deformation as recited in the instant application would be highly expected in the thin component produced by the process of JP'214 in view of US'227. The Examiner further notes JP'214 teaches a method for solid forming and tempering treatment, capable of performing quenching at sufficient cooling velocity without causing distortion even in the case of a relatively thick material (Abstract of JP'214), which reads on the improvement on the warping deformation as argued in the instant remarks.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/
Supervisory Patent Examiner, Art Unit 1793